

REMARKS

By the present amendment, claims 4 to 6 are pending in the application.

Claim Amendment

The Office Action states at page 9, last 9 lines the following:

While noting that Odell does teach that the panels are to be staggered, the examiner's notation that the figures teach an opening is maintained. Openings are well known in the art for various applications, and as shown, the figures disclose "an opening". Applicant respectfully provides in the claim language "a construction of a wall opening". The claim language does not provide any other limitations to define the opening. As a result, the examiner maintains the rejection as proper. (Emphasis added).

Contrary to the position taken by the Office Action, prior independent claim 4 specifically defines the wall opening in paragraph 4 of claim 4 as follows:

said first side face wall frame member (64), said second side face wall frame member (64), said opening upper frame (57), and said opening lower frame member (54) defining said wall opening (51); (Emphasis added).

Independent claim 4, paragraph 4, has been amended as follows by the present amendment to make clear that the "wall opening" is defined in independent claim 4 by specific structural members.

said wall opening (51) defined by said first side face wall frame member (64), said second side face wall frame member (64), said opening upper frame member (57), and said opening lower frame member (54); (Emphasis added).

This amendment will make it clear that the "wall opening" of independent claim 4 is defined by specific structural members which are later in independent claim 4 specifically defined in independent claim 4.

This structure of the present invention is not disclosed or suggested by the prior art of record.

§103

Claims 4 to 6 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 2,291,498 to Odell in view of U.S. Patent Pub. No. 2003/0145537 to Bailey and U.S. Patent No. 4,869,040 to Howell.

This rejection, as applied to amended claims 4 to 6, is respectfully traversed.

Patentability

The present invention provides a structure for a wall opening of a steel house able to suppress the breaking stress resulting, e.g., from an earthquake, to a low level while maintaining the initial rigidity thereof at high level.

Specifically, as shown in Fig. 6 of the specification of the present application, the curve u of the present invention structure, compared with the curve t of a conventional structure, exhibits excellent energy absorption ability by suppressing local concentrations of stress in the steel house.

U.S. Patent No. 2,291,498 (“US ‘498”)

Although the Office Action takes the position based on Fig. 6 of U.S. ‘498 that “D” is a wall opening, applicants maintain that there are no grounds for “D” to be a wall opening in US ‘498 as responded to in the previous argument.

Even if “D” may be a considered wall opening (e.g., a window), the present invention is clearly different from that of US ‘498 in structure and effects.

As will be understood from the reference Figures attached hereto, the present invention is characterized in that each of the face members constituting the vertical wall panel (71) and wainscot wall panel (72) are extended in the horizontal direction to integrate with the first and the second side face walls (73).

On the contrary, in US ‘498, the horizontal dimension of the vertical wall panel and the wainscot wall panel are short and not integrated with a part of the side face wall

panel on the right side. Therefore, the present invention and US '498 are different in structure.

Since the vertical wall and the wainscot wall panel are not integrated with part of the side face wall panel on the right side in US '498, the reinforcing effect by the face member is insufficient in structure in US '498.

In the present invention, when a horizontal shear force, such as an earthquake, is applied to the steel house, frames of the side face walls (73) are mainly transformed into a parallelogram shape as shown in Fig. 5 of the specification of the present application.

The connectors 81 (Fig. 1) joining each frame to which the vertical wall panel or the wainscot wall panel is attached with a pair of side face wall panels move left and right and are transformed while absorbing a large amount of energy.

As a result, the deformation behavior (i.e., the relationship between the shear stress and the shear deformation) of the side face walls results in the curve u of the present invention as shown in Fig. 6 of the specification of the present application.

On the other hand, the structure of US '498 is designed based on a rigid structure design and the wall structure as a whole is deformed into a parallelogram shape, a local stress concentration occurs at the foot portion (basement) of the walls, and results in breakage of the structure without absorbing any significant amount of energy. That is, US '498 is different from the present invention in technical concept.

In US '498 and U.S. Patent Pub. No. 2003/0145537 ("US '537"), there are no explanations regarding the joining of the upper side frame member 157 and the horizontal frame member 61, and the joining of the lower side frame member 154 and the horizontal frame member 62, which are structural elements of the present invention.

Further, the Office Action takes the position that US '498 does not disclose the upper side frame member 157 and the lower side frame member 154. However, since US

'537 discloses the member 1 and the member 19, it would have been obvious to have the frame members as shown in US '537 with the system in US '498.

As explained above, it is submitted that all structural features of the claims of the present invention are not disclosed or suggested by US '498 or US '537.

U.S. Patent No. 4, 869,040 (US '040") was only cited for a steel framing system. This does not cure the defects in the disclosure of the structure in US '498 and US '537.

It is submitted that the present invention is not disclosed or suggested by US '498, US '537 and US '040 even if they are combined.

It is therefore submitted that new claims 4 to 6 of the present amendment are patentable over US '498 in view of US '537 and US '040.

CONCLUSION

It is submitted that in view of the present amendment and foregoing remarks, the application is now in condition for allowance. It is therefore respectfully requested that the application, as amended, be allowed and passed to issue.

Respectfully submitted,

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